Jan. 10, 1939. C. G. BEERSMAN 2,143,342

CONNECTER

Filed March 26, 1936

Fig. 1.

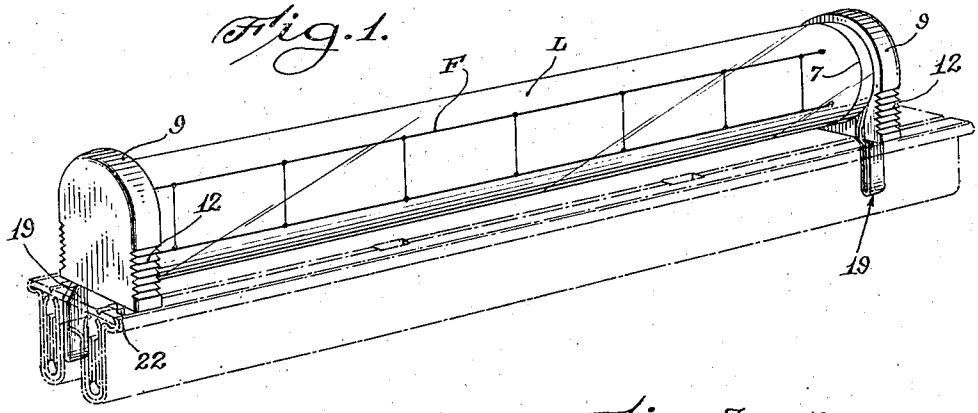


Fig. 2.

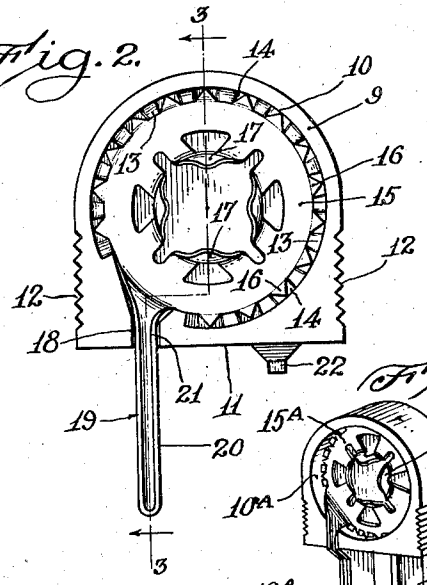


Fig. 3.

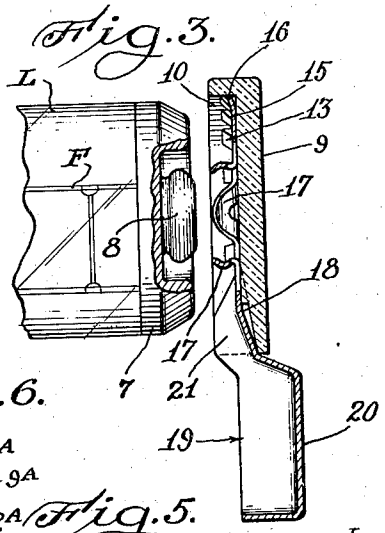


Fig. 6.

Fig. 5.

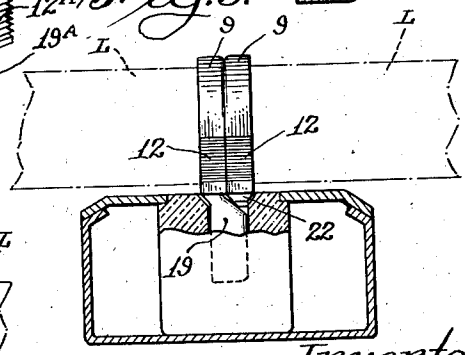
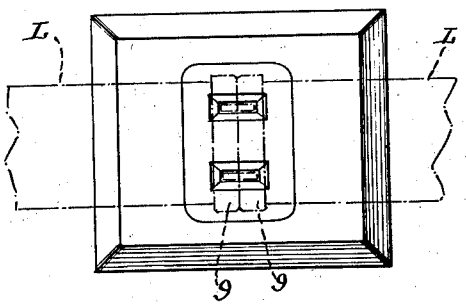


Fig. 4.



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UNITED STATES PATENT OFFICE

2,143,342

CONNECTER

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Application March 26, 1936, Serial No. 70,954

8 Claims. (Cl. 173—328)

This invention relates to connecters especially adapted for use with elongated electrical apparatus equipped with a terminal at each end thereof, a tubular lamp comprising a longitudinally extending filament being a specific example of such apparatus.

Heretofore caps have been provided for connecting such lamps and like elongated electrical apparatus in a circuit, but such caps have been connected to specially constructed receptacles adapted to cooperate therewith and adapters have been provided to enable the connection of lamp engaging means to standard electrical outlet receptacles. The primary object of this invention is to directly connect elongated electrical apparatus provided with a terminal at each end thereof to a standard electrical outlet receptacle without the use of adapters or other ancillary apparatus.

It is essential that elongated electrical apparatus, such as tubular lamps, be firmly connected in position to prevent injury thereto and therefore another object of my invention is to firmly but detachably secure such apparatus in operative position as well as to connect the apparatus in an electrical circuit.

A still further object is to connect the adjacent ends of longitudinally aligned elongated electrical apparatus in the same standard electrical outlet receptacle and to insure that terminals at opposite ends of such apparatus will be connected to both conductors of an electrical circuit, and a still further object is to provide a novel connecter of simple and economical construction and which will be efficient and positive in use to mechanically secure elongated electrical apparatus having a terminal at each end thereof in position and to electrically connect such apparatus in an electrical circuit.

Selected embodiments of my invention are illustrated in the accompanying drawing wherein

Fig. 1 is a perspective view of a pair of my novel connecters associated with an elongated tubular lamp and a continuous electrical outlet device of the kind shown and described in my Patent 2,072,703, patented March 2, 1937;

Fig. 2 is an elevation of my novel connecter;

Fig. 3 is a view taken substantially on the line 3—3 on Fig. 2 and showing the terminal end of the lamp illustrated in Fig. 1 in detached association with my novel connecter;

Fig. 4 is a plan view illustrating the manner in which my novel connecters are employed to connect adjacent ends of elongated electrical apparatus in the same standard outlet receptacle;

Fig. 5 is a side view partly in elevation and partly in section of the parts as illustrated in Fig. 4; and

Fig. 6 is a perspective view of a double connecter embodying my invention.

I have illustrated preferred forms of my invention in the accompanying drawing in association with a tubular lamp L having elongated filament F therein. End caps 7 are provided at opposite ends of the lamp L and snap button terminals such as 8 (Fig. 3) are provided therein whereby such a terminal is provided at each end of the lamp and the opposite ends of the filament F are respectively connected to these terminals, whereby current flows through the filament F when the terminals are connected to opposite sides of an electrical circuit. My invention particularly relates to the connection of these terminals in an electrical circuit and to mechanically securing the apparatus on which the terminals are provided in operative position.

My novel connecter for electrically connecting terminals such as 8 in an electrical circuit and for firmly securing elongated electrical apparatus such as the lamp L in operative position, as best illustrated in Figs. 2 and 3, includes a body 9 of insulating material. A substantially cylindrical recess 10 is provided in one face of the body and preferably the outline of the upper half of the body 9 is complementary to this recess. The lower edge 11 of the body 9 is preferably flat to facilitate neat seating thereof on the face of an electrical receptacle. Straight walls interconnect the ends of the curved upper half of the body 9 and the ends of the lower wall 11 and serrations 12 are provided in these walls to facilitate gripping the connecter.

A series of spaced lugs 13 is provided about the outer wall of the recess 10 on the bottom thereof whereby pockets 14 are defined therebetween. A flat metallic disc 15 is rested against the bottom wall of the recess 10 and has lugs 16 about the periphery thereof which fit in the pockets 14 and engage the upwardly extending wall of the recess 10. This engagement of the lug 16 with the upwardly extending wall of the recess firmly anchors the disc 15 in position and the disposition of the lug 16 in the pockets 14 prevents relative movement between the disc 15 and the body 9.

The medial part of the disc 15 is struck up to provide resilient prongs 17 that are adapted to embrace a snap button terminal 8 whereby firm mechanical and electrical connection between the disc 15 and the terminal 8 is provided.

A channel 18 extends through the body 9 from the edge 11 into the recess 10 and a leg or prong, generally indicated by 19 and preferably formed integral with the disc 15 extends through this channel to depend below the edge 11. The leg 19 is formed by folding the metal of the disc 15 to define a channel, as best shown in Fig. 2. The lower part 20 of the leg 19 is offset rela-

tive to the part 21 thereof disposed in the channel 18, as best shown in Fig. 3, and this offset part 20 therefore extends beyond the plane of the face of the body 9 opposite that having the recess 10 therein. The leg 19, longitudinally of the channel therein, has a dimension substantially equal to the length of the slot in a standard electrical outlet receptacle, and the plane of the face of the body 9 opposite that having the recess 10 therein intersects this leg substantially medially of the longitudinal extent of the channel in the leg 19, particularly because of the offset in the leg, the utility of which offset is explained more fully hereinafter.

Standard electrical outlet receptacles are equipped with two slots spaced apart in a predetermined amount to receive the prongs of standard electrical attachment plugs. This spacing is standard on all electrical outlet receptacles and inasmuch as the leg 19 is adapted to be extended into one of such slots I may provide means engageable in the other slot which will increase the mechanical rigidity of the connection of my connecter in a standard electrical outlet receptacle. Hence I provide a boss 22 on the body 9 which depends below the edge 11, and this boss 22 is transversely spaced from the leg 19 in an amount corresponding to the spacing of the slots of a standard electrical outlet receptacle whereby when the leg 19 is extended into one of the slots in an electrical outlet receptacle the boss 22 will seat in the other of the slots. The boss 22 is located near the face of the body 9 opposite that having the recess 10 therein. It is to be understood that while I have shown the boss 22 as being integral with the body 9 it could be made as a separate piece and suitably joined to the body, and under some circumstances the boss 22 may not be required or it may be advantageous to eliminate it.

In use my novel connecter is first positioned relative to one end of the lamp L or other similar electrical apparatus in the manner, for example, illustrated in Fig. 3, and the prong 17 and terminal 8 are pressed together so that the prongs spring about and tightly embrace said terminal which affords firm mechanical connection between my novel connecter and the lamp L. Then the leg 19 is passed through one slot of, for example, a standard electrical connecter as shown in Fig. 4. By reason of the offset part 20 of the leg 19, the face of the body 9 opposite that having the recess 10 therein is disposed substantially midway between the ends of the slot in the electrical outlet receptacle. Hence where two lamps L or similar apparatus are to be connected to the same electrical receptacle two of my novel connecters may be arranged with the faces thereof opposite those having the recesses 10 therein in abutting relation, and since the connecters will then face in opposite directions the leg 19 of one connecter will pass into one slot of the receptacle and the leg 19 of the other connecter will pass into the other slot in the receptacle, and it is therefore manifest that my novel connecter is so arranged that longitudinally aligned lamps L may be connected to the same receptacle to extend in opposite directions therefrom.

When the leg 19 enters one slot of an electrical receptacle the boss 22 enters the other slot, but the boss 22 does not engage the electrical devices associated with the slot which it enters as does the leg 19. Such seating of the boss 22 in this other slot increases the rigidity of the mechanical connection of the connecter with the receptacle, and since the connecters are firmly connected to the lamps or the like this firm mechanical connection insures firm supporting of the lamps or the like to which my connecters are attached.

The lamps L and other similar electrical apparatus equipped with a terminal at each end thereof are made in standard lengths and when used with standard outlet receptacles, such as shown in Figs. 4 and 5, the receptacles must be spaced apart to have the transverse center lines of the slots thereof spaced equally to the standard lengths of the lamps or the like, and since the lamps are relatively short it is necessary to provide such receptacles at frequent intervals. It is therefore advantageous to use a continuous electrical outlet device such as that shown in my Patent 2,072,703 wherein attachment openings may be provided either at standard intervals or in any desired location. Such openings are usually provided at standard intervals which, especially in multiple, correspond to the standard lengths of the lamps or the like. It is therefore advantageous to use such a continuous electrical outlet device and the novel connecter of this invention is particularly suitable for electrically and mechanically connecting electrical apparatus, such as the lamps L, to such a continuous electrical outlet device.

Inasmuch as it is frequently desirable to connect the lamps L and the like in longitudinal alignment in the manner illustrated in Figs. 4 and 5, a double connecter may be provided such as that illustrated in Fig. 6 wherein a body 9A is provided which is substantially similar to the body 9 except that it is twice as thick as said body and this body 9A is equipped with the usual grip portions 12A and has a recess 10A in each face thereof. A metallic disc 15A is secured in each of these recesses 10A and prongs 17A are provided on these discs. Each disc 15A is equipped with a leg 19A, which legs are transversely spaced from each other similar to the spacing of the leg 19 and the boss 22 so that each leg 19A will enter the slot of a standard outlet receptacle either of the kind shown in Figs. 4 and 5 or of the kind shown in Fig. 1.

I have illustrated and described preferred forms of my novel connecter but it is to be understood that these are capable of variation and modification, and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alterations as fall within the scope of the following claims:

I claim:

1. A connecter of the class described including a body comprising opposite substantially parallel faces and having a recess in at least one of said faces, attachment means mounted in said recess and adapted for engagement with a terminal provided at one end of an electrical device, a prong depending from said body and having electrical and mechanical connection with said attachment means and adapted for insertion into one slot of the pair of slots in an electrical outlet receptacle to engage electrical contact means in an electrical circuit, and another prong depending from said body and adapted to be inserted into the other slot of said pair of slots and not having electrical connection with said attaching means, said prongs cooperating when inserted into said slots to firmly support the end of an electrical device bearing a terminal connected to said attachment means.

2. A connecter of the class described including a body having attachment means therein constructed and arranged for electrical and yieldable gripping mechanical connection with a terminal provided at one end of an electrical device, a prong depending from said body and having electrical and mechanical connection with said attachment means and adapted for insertion into one slot of a pair of slots in an electrical outlet receptacle to engage electrical contact means in an electrical circuit, and a second prong depending from said body and having mehanical connection therewith, said second prong being free from electrical connection with said attachment means, said second prong being insertable into the other slot of said pair of slots, said prongs cooperating when inserted into said slots to firmly support the end of an electrical device bearing a terminal connected to said attachment means.

3. A connecter of the class described including a body having attachment means therein adapted for electrical and mechanical connection with a terminal provided at one end of an electrical device, a prong depending from said body and having electrical and mechanical connection with said attachment means and adapted for insertion into one slot of the pair of slots in an electrical outlet receptacle to engage electrical contact means in an electrical circuit, and another prong depending from said body and adapted to be inserted into the other slot of said pair of slots and not having electrical connection with said attaching means, said prongs cooperating when inserted into said slots to firmly support the end of an electrical device bearing a terminal connected to said attachment means.

4. A connecter of the class described including a body having attachment means therein adapted for electrical and mechanical connection with a terminal provided at one end of an electrical device, and a prong depending from said body and having electrical and mechanical connection with said attachment means and adapted for insertion into one slot of the pair of slots in a standard electrical outlet receptacle, said prong being offset relative to one face of said body to dispose said face of said body substantially in alignment with the transverse center line of said slot when said prong is inserted into said slot whereby a prong on another like connecter may be inserted into the other slot of said pair of slots and said face on said body will be disposed adjacent a like face on the body of said like connecter.

5. A connecter of the class described including a body of insulating material having a recess opening into one face thereof and having a flat edge adapted to seat on the face of an electrical outlet receptacle and also having a slot extending from said edge into said recess, attachment means in said recess constructed and arranged to yieldingly grip a terminal provided at one end of an electrical device, a prong unitary with said attachment means extended through said slot and depending below said edge and adapted for insertion into a slot in the electrical outlet receptacle to engage electrical contact means in the receptacle and connect said attachment means in an electrical circuit and firmly support the end of an electrical device bearing a terminal connected to said attachment means, and another prong connected to and depending from said body and adapted to be inserted into another slot in the electrical outlet receptacle and not having electrical connection with said attaching means, said last-named prong cooperating with the first-named prong when said prongs are inserted into the slots in the electrical receptacle to firmly support the electrical device.

6. A connecter of the class described including a body of insulating material having a recess opening into one face thereof and having a flat edge adapted to seat on the face of an electrical outlet receptacle and also having a slot extending from said edge into said recess, attachment means in said recess adapted for engagement with a terminal provided at one end of an electrical device, a prong unitary with said attachment means extended through said slot and depending below said edge and adapted for insertion into a slot in the electrical outlet receptacle to engage electrical contact means and connect said attachment means in an electrical circuit and firmly support the end of an electrical device bearing a terminal connected to said attachment means, and a boss depending from said body in spaced relation with said prong and adapted for insertion into another slot in the receptacle, said boss cooperating with said prong when inserted into said slot to insure firm support of said end of said electrical device.

7. A connecter of the class described including a body of insulating material having a recess opening into one face thereof and having a flat edge adapted to seat on the face of an electrical outlet receptacle and also having a slot extending from said edge into said recess, attachment means in said recess adapted for engagement with a terminal provided at one end of an electrical device, and a prong unitary with said attachment means extended through said slot and depending below said edge and adapted for insertion into a slot in the electrical outlet receptacle to engage electrical contact means and connect said attachment means in an electrical circuit and firmly support the end of an electrical device bearing a terminal connected to said attachment means, said prong being offset relative to the face of said body opposite that having the recess therein to dispose said face of said body substantially in alignment with the transverse center line of said slot when said prong is inserted into said slot whereby a prong on another like connecter may be inserted into the other slot of said pair of slots and said face on said body will be disposed adjacent a like face on the body of said like connecter.

8. A connecter of the class described including a body of insulating material having recesses in opposite faces thereof, independent attachment means in said recesses each adapted for engagement with a terminal provided at an end of an electrical device, and prongs each having electrical and mechanical connection with one of said attachment means and depending from said body, said prongs being respectively insertable into slots in an electrical outlet receptacle to connect said attachment means in an electrical circuit and firmly support the ends of electrical devices bearing terminals connected to said attachment means.

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